

CLAIMS

1. A method for budgeted learning of link information in a network, comprising:

providing a database to contain the link information, for use by an entity connected to the network in transferring traffic over the network;

setting a maximum rate for addition of entries to the database;

responsive to the traffic on the network during a learning period, determining a new entry to be added to the database; and

adding the new entry to the database only if the addition of the entries during the learning period has not exceeded the maximum rate.

2. A method according to claim 1, wherein setting the maximum rate comprises setting a budget of the entries to be added to the database during the learning period, and wherein adding the new entry comprises adding the new entry to the database and decrementing the budget responsive to the new entry.

3. A method according to claim 2, wherein setting the budget comprises allocating a number of the entries to be added by the entity, such that a sum of the number of entries added over all the one or more entities during the learning period is less than or equal to a total number of the entries in the database.

4. A method according to claim 1, wherein the entity comprises a bridge, and wherein providing the database comprises building a filtering database for use by the bridge.

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5. A method according to claim 4, wherein the bridge serves a plurality of communication domains, and wherein setting the maximum rate comprises setting a respective maximum number of the entries to be added responsive to the traffic in each of the domains, so that the new entry is added to the database responsive to the traffic in a given one of the domains only if the addition of the entries for the given one of the domains during the learning period by the bridge has not exceeded the respective maximum number.

6. A method according to claim 5, wherein the bridge comprises a media access control (MAC) bridge, and wherein the domains comprise Virtual Local Area Network (VLAN) domains.

7. A method according to claim 5, wherein the bridge comprises a label-switched router (LSR), and wherein the domains comprise Transparent Local Area Network Service (TLS) domains.

8. A method according to claim 4, wherein determining the new entry comprises receiving a data packet having a source address that does not appear in the database, and generating the new entry responsive to the source address.

9. A communication device, comprising:

one or more ports, adapted to send and receive traffic on a network; and

a traffic processor, which is coupled to receive the traffic from the one or more ports, and to process the traffic for further transfer over the network using a database of link information, the traffic processor being

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further adapted, responsive to the traffic on the network during a learning period, to determine new entries to be added to the database and to add the new entries to the database only if addition of the new entries during the learning period has not exceeded a predetermined maximum rate for the addition of the new entries to the database.

10. A device according to claim 9, wherein the maximum rate is determined by setting a budget specifying a number of the entries to be added to the database during the learning period, and wherein the processor is adapted to decrement the budget responsive to each of the new entries that it adds to the database during the learning period.

11. A device according to claim 10, wherein the budget is set so that a sum of the number of the entries added to the database during the learning period is less than or equal to a total number of the entries in the database.

12. A device according to claim 9, wherein the ports and the traffic processor are configured so that the device operates as a bridge, and wherein the database comprises a filtering database used in the bridge.

13. A device according to claim 12, wherein the bridge serves a plurality of communication domains, and wherein the maximum rate is determined by setting a respective maximum number of the entries to be added responsive to the traffic in each of the domains, so that the new entries are added to the database responsive to the traffic in a given one of the domains only if the addition of the entries for the given one of the domains

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during the learning period has not exceeded the respective maximum number.

14. A device according to claim 13, wherein the bridge comprises a media access control (MAC) bridge, and wherein the domains comprise Virtual Local Area Network (VLAN) domains.

15. A device according to claim 13, wherein the bridge comprises a label-switched router (LSR), and wherein the domains comprise Transparent Local Area Network Service (TLS) domains.

16. A device according to claim 12, wherein the traffic processor is adapted to generate the new entries responsive to receiving a data packet having a source address that does not appear in the database.